

Application Number 10/568348
Response to the Office Action dated May 16, 2008

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A glucose sensor comprising an a housing, an insulating substrate mounted in the housing, a working electrode formed on the insulating substrate within the housing, a counter electrode formed on the insulating substrate within the housing, a first hollow needle projecting out from the housing that sticks into skin, samples a body fluid, and supplies the body fluid to the working electrode, and a second hollow needle projecting out from the housing that sticks into the skin, samples the body fluid and supplies the body fluid to the counter electrode, the working electrode including a conductive component and glucose dehydrogenase immobilized to the conductive component;

wherein the glucose dehydrogenase is a protein complex including a catalytic activity subunit in which flavin adenine dinucleotide is bound as coenzyme and which has glucose dehydrogenase activity, and an electron mediator subunit for supplying an electron donated from the catalytic activity subunit to the conductive component.

2. (Original) The glucose sensor according to claim 1, wherein the glucose dehydrogenase derives from a microorganism belonging to the genus Burkholderia.

3. (Original) The glucose sensor according to claim 2, wherein the electron mediator subunit is cytochrome c.

4. (Original) The glucose sensor according to claim 3, wherein molecular weight of the catalytic activity subunit in SDS-polyacrylamide gel electrophoresis under reduction

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conditions is about 60 kDa, whereas molecular weight of the cytochrome c in SDS-polyacrylamide gel electrophoresis under reduction conditions is about 43 kDa.

5. (Original) The glucose sensor according to claim 4, wherein the glucose dehydrogenase further includes a γ subunit whose molecular weight in SDS-polyacrylamide gel electrophoresis under reduction conditions is about 14 kDa.

6. (Currently Amended) The glucose sensor according to claim 1, wherein the glucose sensor is designed to continuously measure a glucose level or successively measure a glucose level a plurality of times while the first and second hollow needles are held in the skin.

7. (Cancelled)

8. (Currently Amended) The glucose sensor according to claim ~~[[7]]~~ 1, wherein the ~~sampler comprises a hollow lancing needle for lancing skin and~~ housing comprises a liquid reservoir for reserving the blood or interstitial body fluid sampled through the lancing first and second needles; and

wherein the blood or interstitial body fluid reserved in the liquid reservoir is brought into contact with the working electrode and the counter electrode.

9. (Currently Amended) The glucose sensor according to claim 8, wherein the liquid reservoir comprises a porous body arranged in contact with the working electrode, the counter electrode, the first needle and the lancing second needle.

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

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13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)

21. (New) A glucose sensor comprising a housing, an insulating substrate mounted in the housing, a working electrode formed on the insulating substrate, and a counter electrode formed on the insulating substrate, the working electrode including a conductive component and glucose dehydrogenase immobilized to the conductive component;

wherein the glucose dehydrogenase is a protein complex including a catalytic activity subunit in which flavin adenine dinucleotide is bound as coenzyme and which has glucose dehydrogenase activity, and an electron mediator subunit for supplying an electron donated from the catalytic activity subunit to the conductive component; and

wherein the insulating substrate includes a narrowed portion projecting out from the housing for being embedded under skin, at least part of the working electrode and at least a part of the counter electrode being formed on the narrowed portion of the insulating substrate.

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22. (New) The glucose sensor according to claim 21, wherein the glucose dehydrogenase derives from a microorganism belonging to the genus Burkholderia.

23. (New) The glucose sensor according to claim 21, wherein the glucose sensor is designed to continuously measure a glucose level or successively measure a glucose level a plurality of times while the narrowed portion of the insulating substrate is embedded in the skin.

24. (New) The glucose sensor according to claim 21, wherein the insulating substrate is flexible.

25. (New) The glucose sensor according to claim 22, wherein the electron mediator subunit is cytochrome c.

26. (New) The glucose sensor according to claim 24, wherein the insulating substrate includes a main portion accommodated in the housing, the narrowed portion of the insulating substrate being bent relative to the main portion of the insulating substrate.

27. (New) The glucose sensor according to claim 25, wherein molecular weight of the catalytic activity subunit in SDS-polyacrylamide gel electrophoresis under reduction conditions is about 60 kDa, whereas molecular weight of the cytochrome c in SDS-polyacrylamide gel electrophoresis under reduction conditions is about 43 kDa.

28. (New) The glucose sensor according to claim 27, wherein the glucose dehydrogenase further includes a γ subunit whose molecular weight in SDS-polyacrylamide gel electrophoresis under reduction conditions is about 14 kDa.

29. (New) A glucose level measuring apparatus designed to continuously measure a glucose level or successively measure a glucose level a plurality of times based on a body fluid, the apparatus comprising:

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a glucose sensor according to any one of claims 1-6, 8, 9, and 21-28;
a measurer for measuring a response from the glucose sensor;
a computation unit for computing a glucose level based on the measurement by
the measurer; and
a controller for controlling timing at which the glucose level is computed at the
computation unit.